WE CLAIM:

1. A photothermographic material that comprises a support having thereon one or more thermally-developable imaging layers comprising a binder and in reactive association, a photosensitive silver halide, a non-photosensitive source of reducible silver ions, and a reducing composition for said non-photosensitive source of reducible silver ions,

wherein said one or more thermally-developable imaging layers further comprise one or more radiation absorbing substances that provide a total absorbance in said one or more thermally-developable imaging layers of greater than 0.6 and up to and including 3 at an exposure wavelength,

said one or more thermally-developable imaging layers having been coated and dried while said material is conveyed at a rate of at least 5 meters per minute.

2. The photothermographic material of claim 1 further comprising a surface protective layer on the same side of said support as said one or more thermally-developable layers, an antihalation layer on the opposite side of said support, or both a surface protective layer and an antihalation layer on their respective sides of said support.

3. The photothermographic material of claim 1 wherein said non-photosensitive source of reducible silver ions is a silver fatty acid carboxylate having 10 to 30 carbon atoms in the fatty acid or a mixture of said silver carboxylates, at least one of which is silver behenate.

4. The photothermographic material of claim 1 wherein said reducing composition comprises at least one hindered phenol.

5. The photothermographic material of claim 4 further comprising a high contrast co-developing agent.

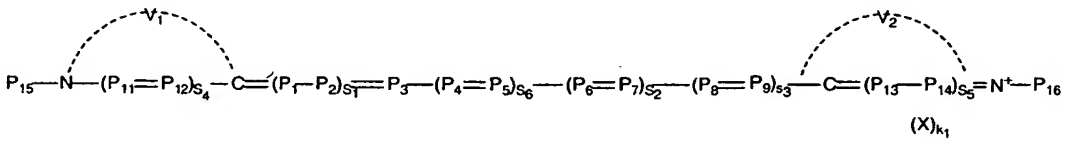
6. The photothermographic material of claim 1 wherein said binder is a hydrophobic binder.

7. The photothermographic material of claim 1 wherein said one or more thermally-developable imaging layers further comprise one or more radiation absorbing substances that provide a total absorbance in said one or more thermally-developable imaging layers of from about 1 to about 2 at an exposure wavelength.

8. The photothermographic material of claim 1 wherein said one or more radiation absorbing compounds are present in an amount of at least 10^{-6} mol/m^2.

9. The photothermographic material of claim 8 wherein said one or more radiation absorbing compounds are present in an amount of from about 10^{-5} to about 10^{-3} mol/m^2.

10. The photothermographic material of claim 1 wherein said one or more radiation absorbing compounds are represented by the following Structure I.



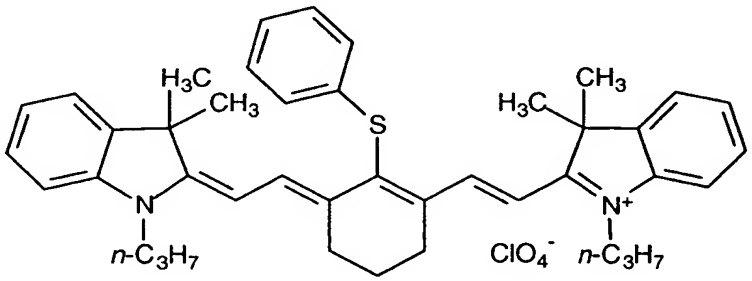
I

wherein V_1 and V_2 independently represent the non-metallic atoms necessary to form substituted or unsubstituted 5-, 6-, or 7-membered heterocyclic rings, P_{15} and P_{16} independently represent alkyl, aryl, alkaryl, or heterocyclyl groups, P_1, P_2, P_3, P_4, P_5, P_6, P_7, P_8, P_9, P_{11}, P_{12}, P_{13}, and P_{14} independently represent methine groups

or substituted methine groups that may optionally form a ring with one or more other methine groups or with an auxochrome, s_1, s_2, s_3, s_4, s_5, and s_6 are independently equal to 0 or 1, X is an electric charge neutralizing counterion, and k_1 is an integer inclusive of 0 necessary to neutralize an electric charge in the molecule.

11. The photothermographic material of claim 1 wherein said one or more radiation absorbing compounds is a cyanine, hemicyanine, merocyanine, squaraine, or oxanol dye.

12. The photothermographic material of claim 1 wherein said one or more radiation absorbing compounds are one or more of the following Compounds AD-1 to AD-55, or mixtures thereof:



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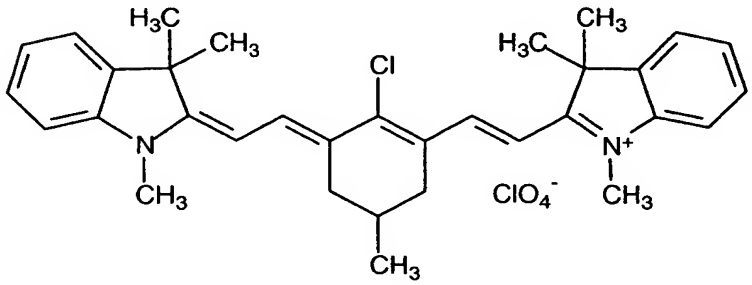

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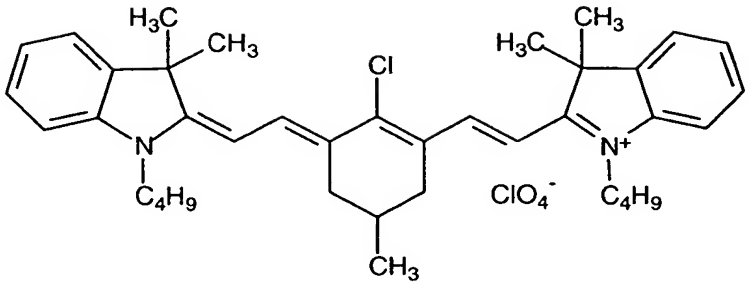

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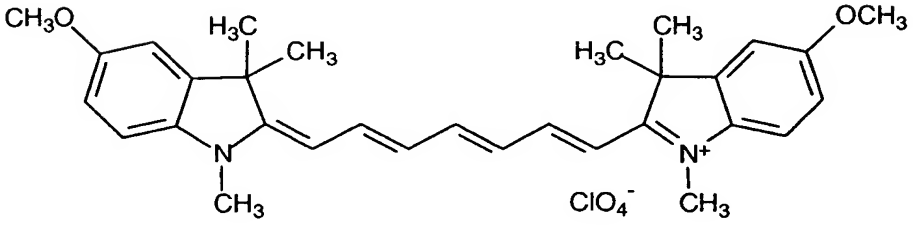

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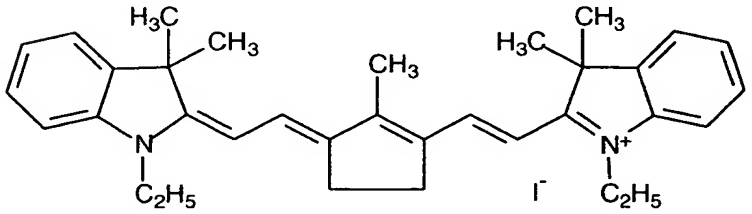

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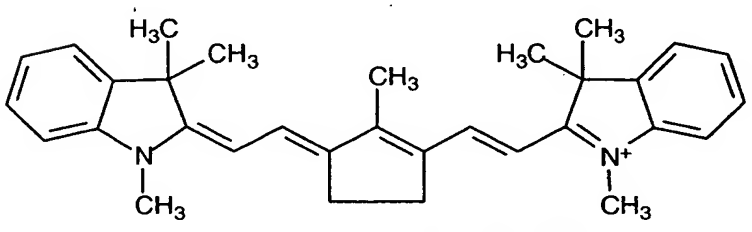

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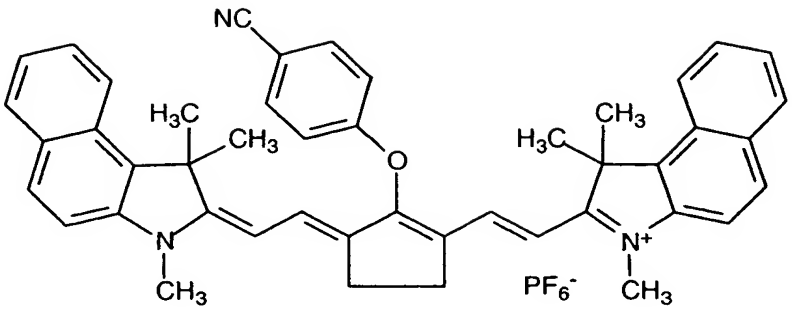

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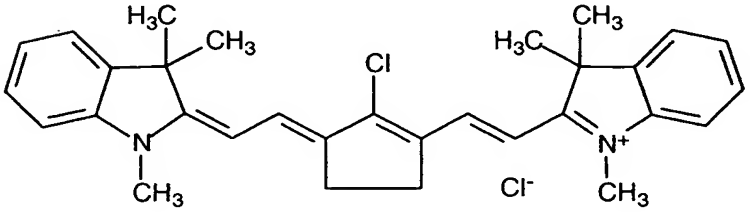

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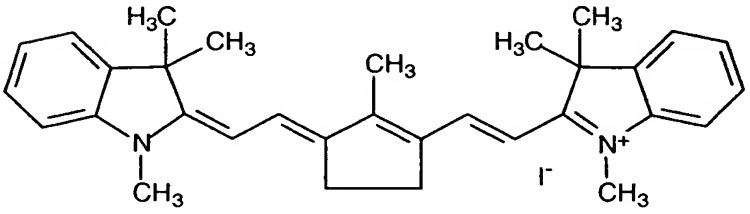

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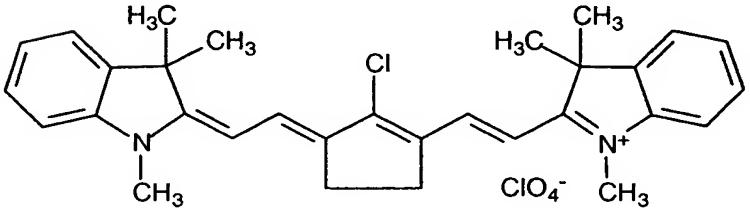

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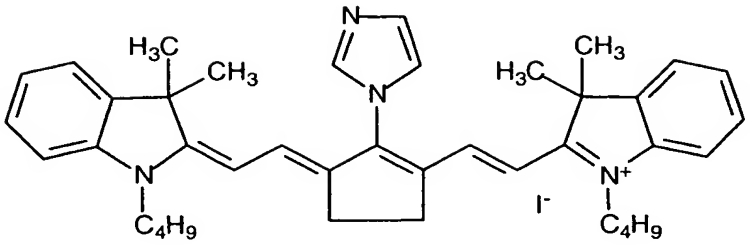

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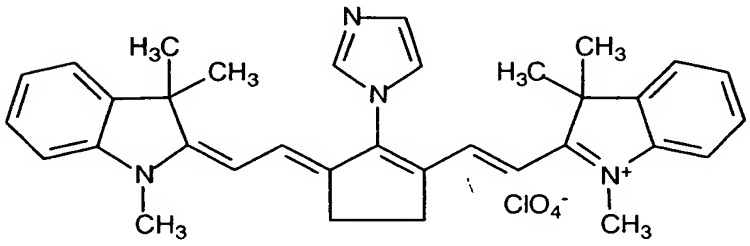

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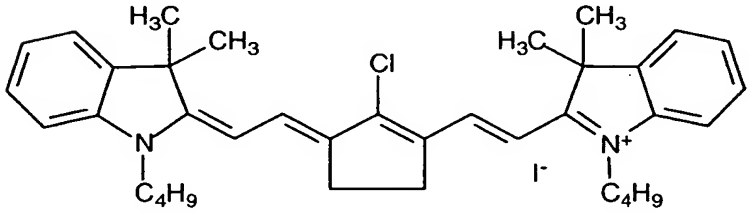

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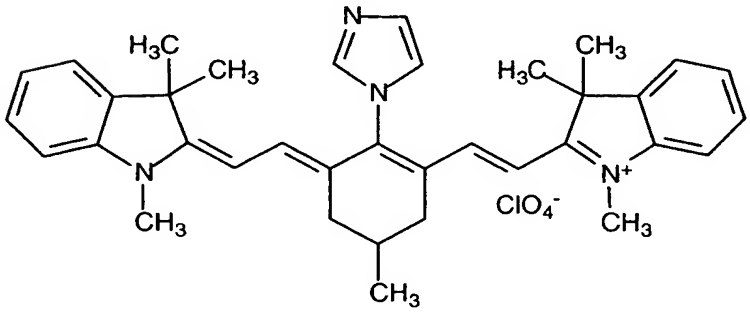

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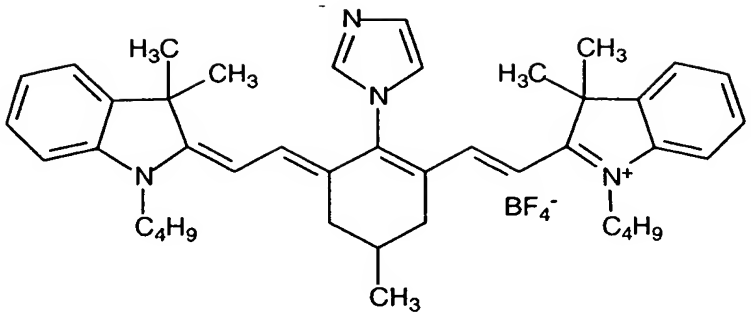

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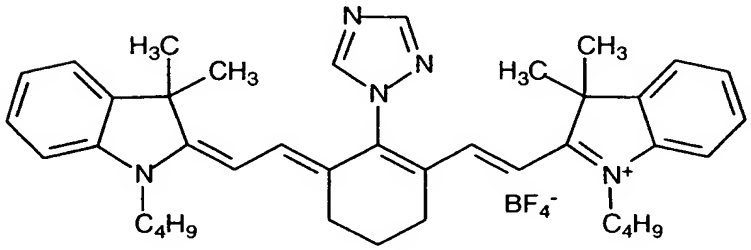

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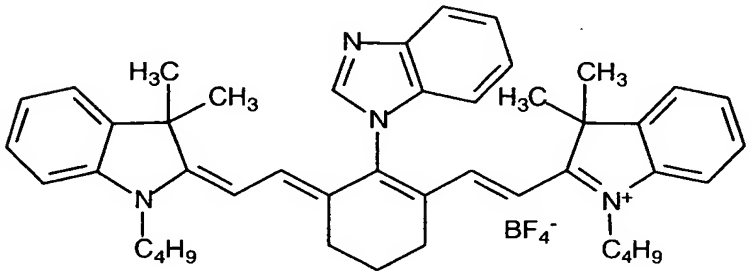

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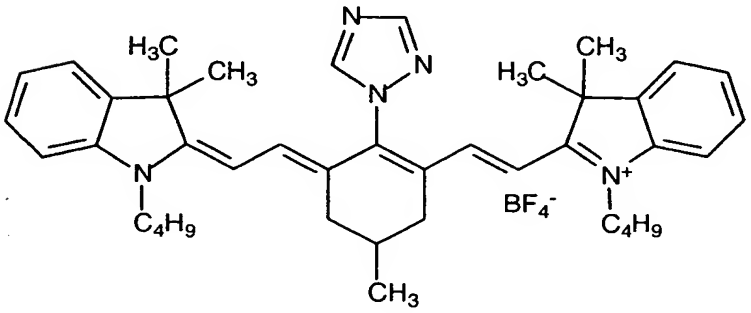

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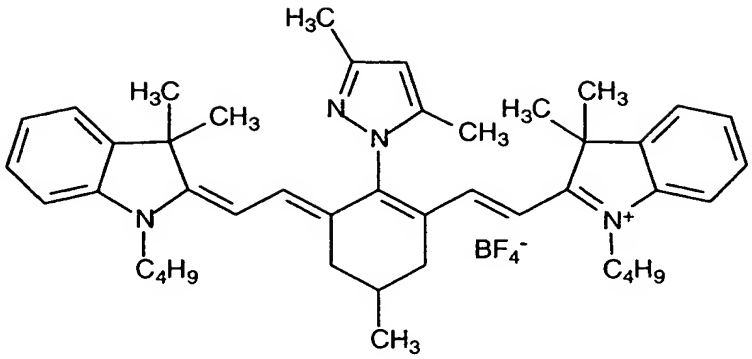

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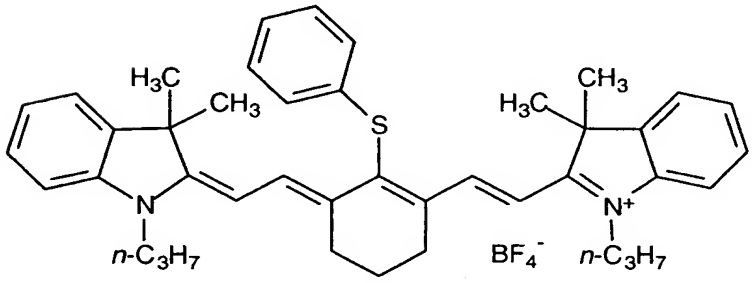

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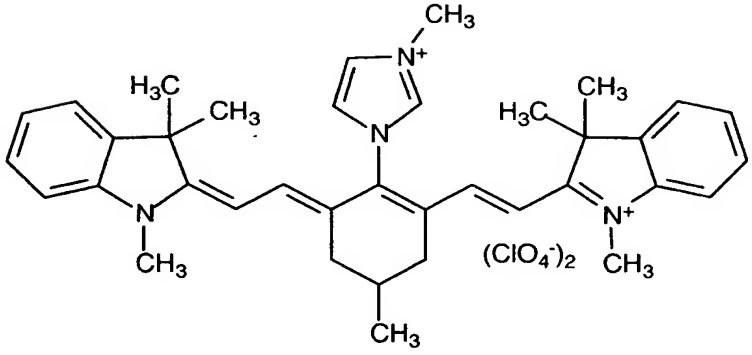

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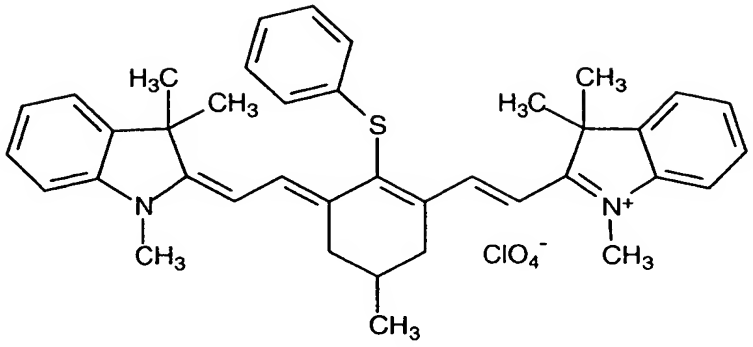

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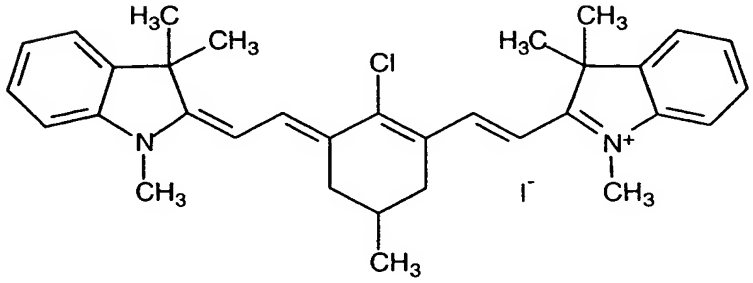

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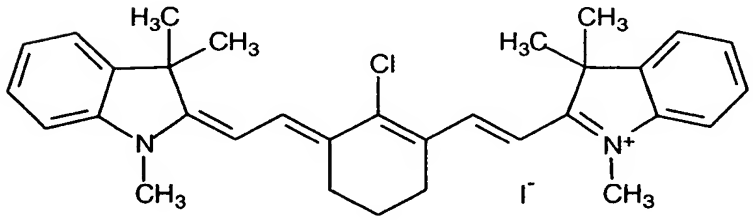

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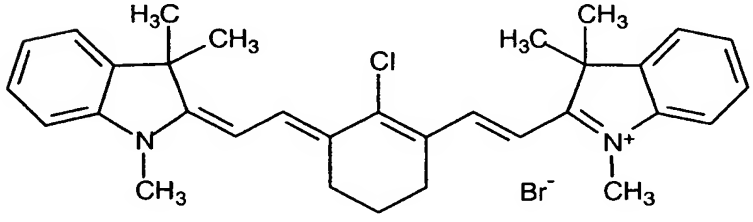

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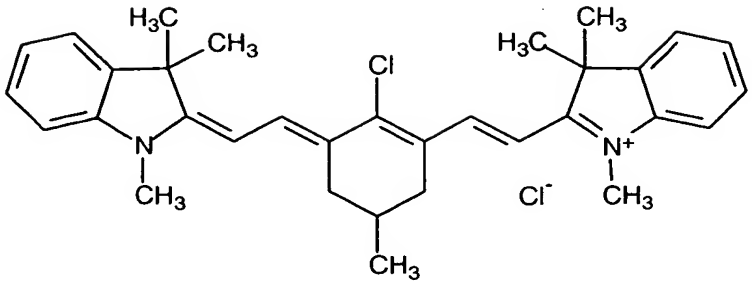

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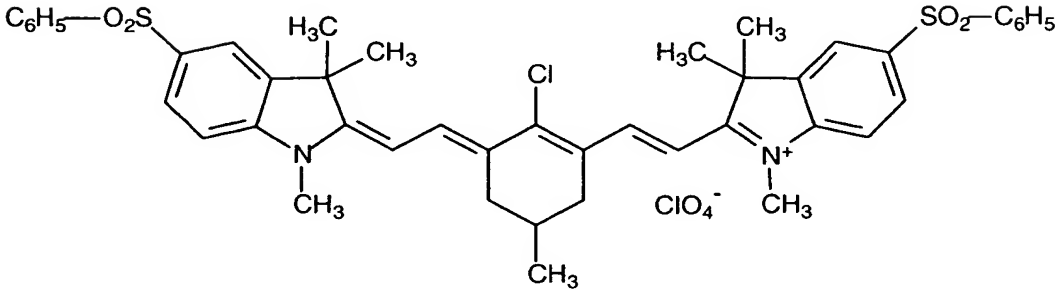

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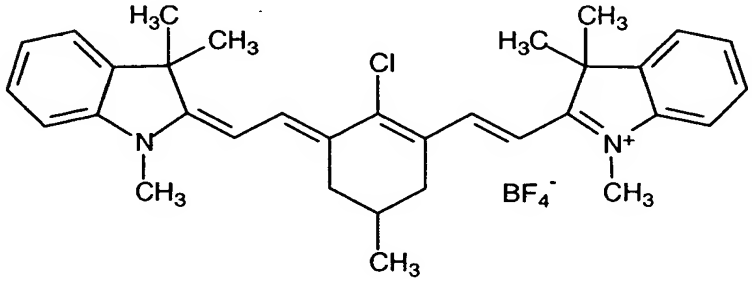

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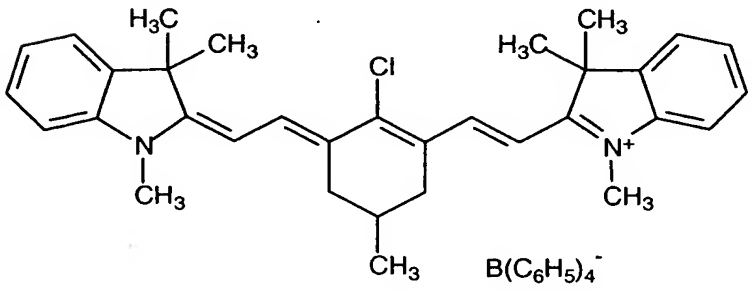

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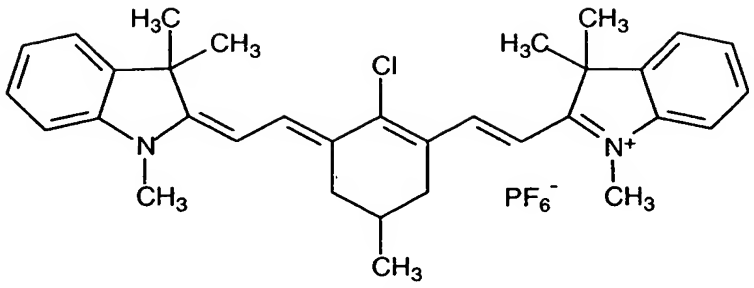

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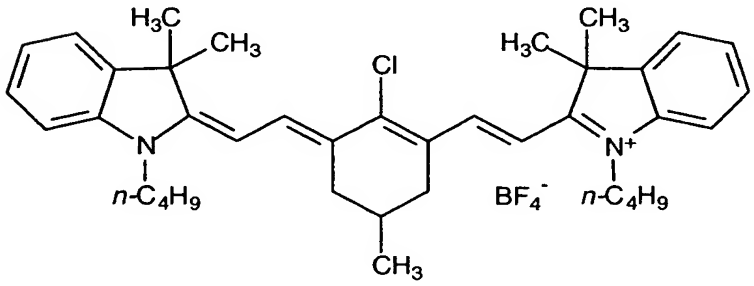

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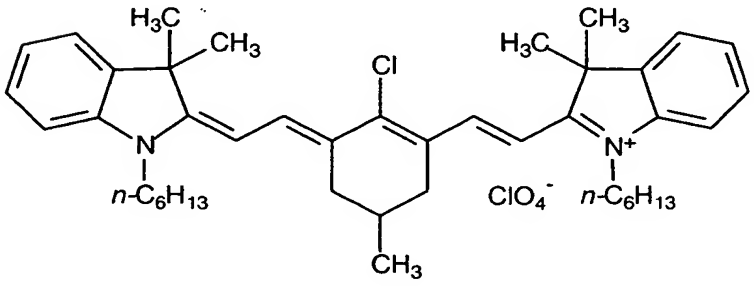

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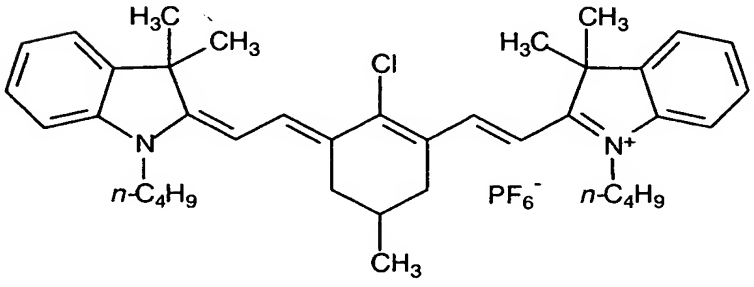

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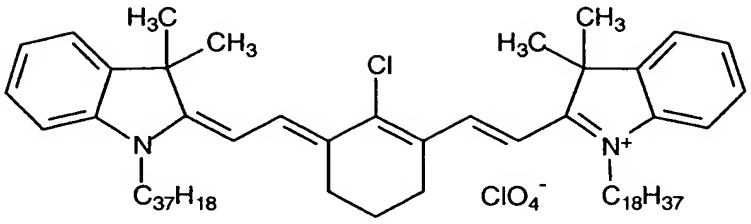

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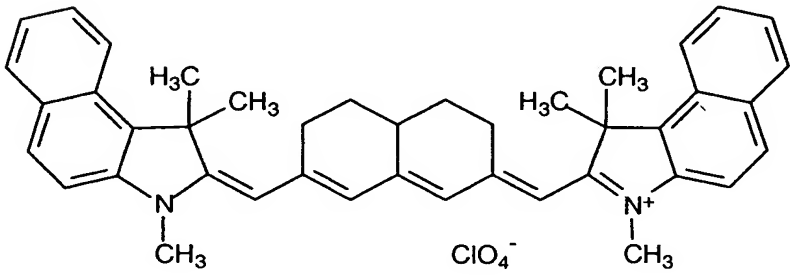

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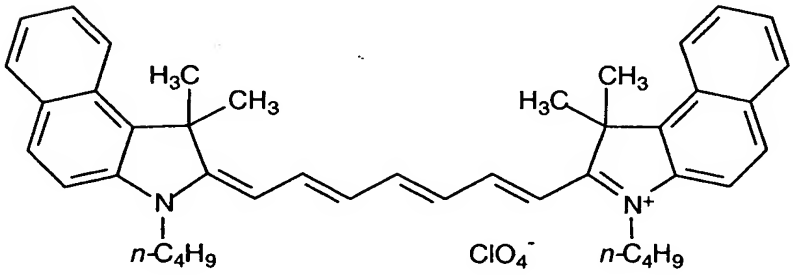

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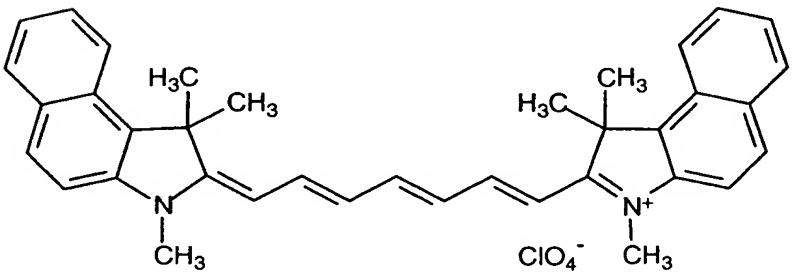

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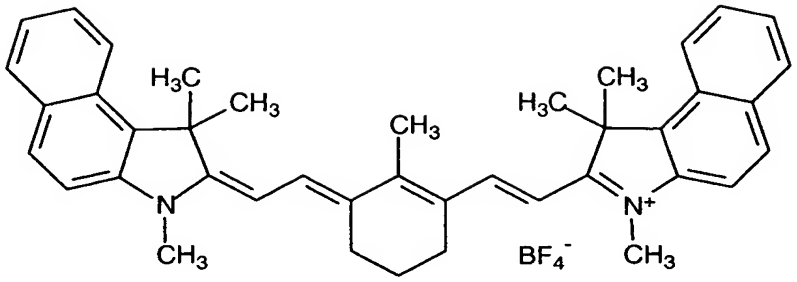

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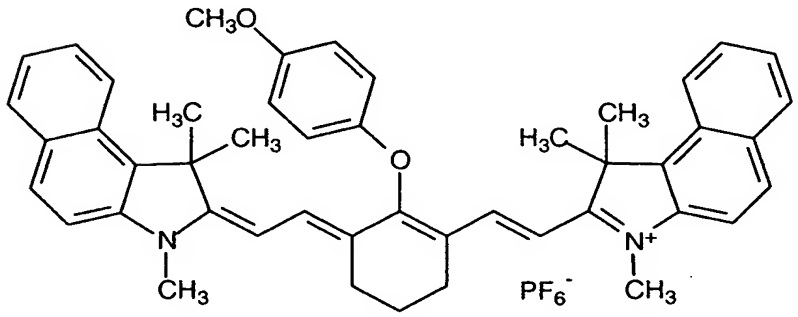

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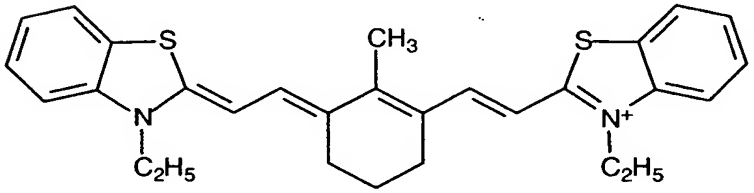

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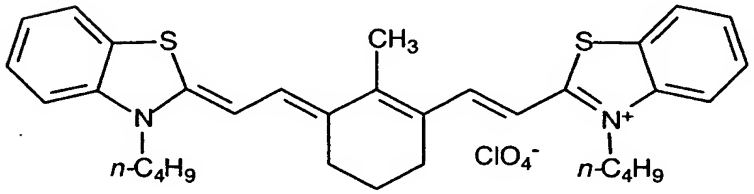

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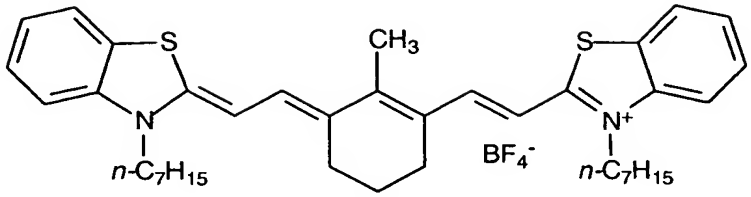

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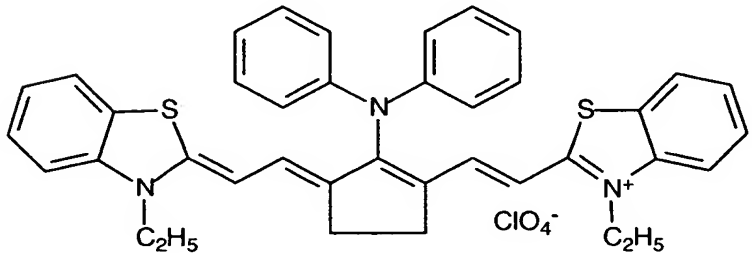

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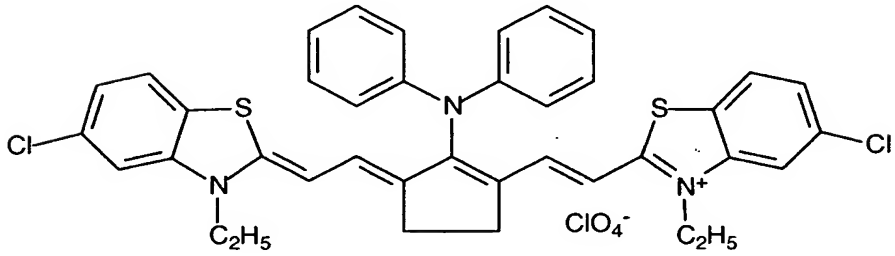

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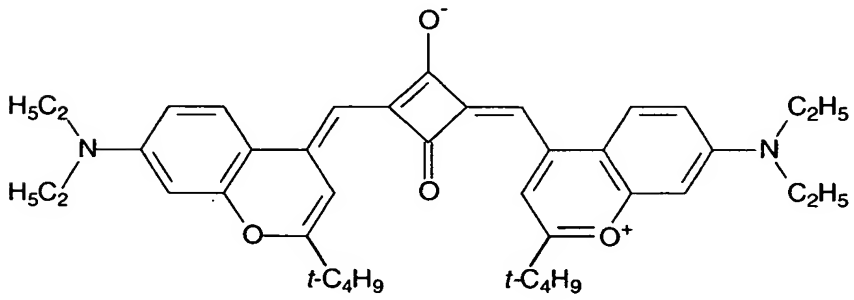

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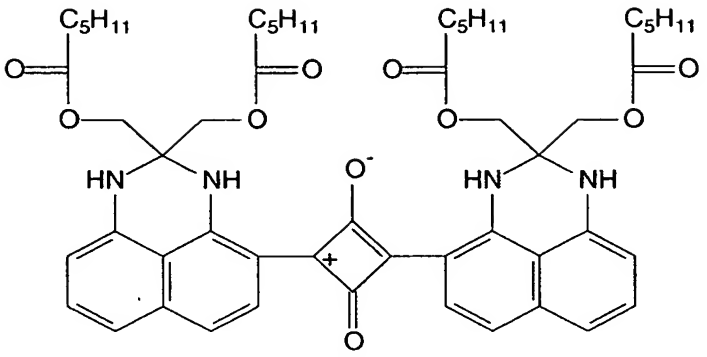

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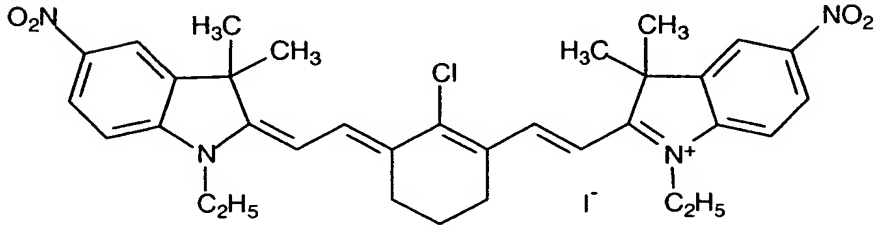

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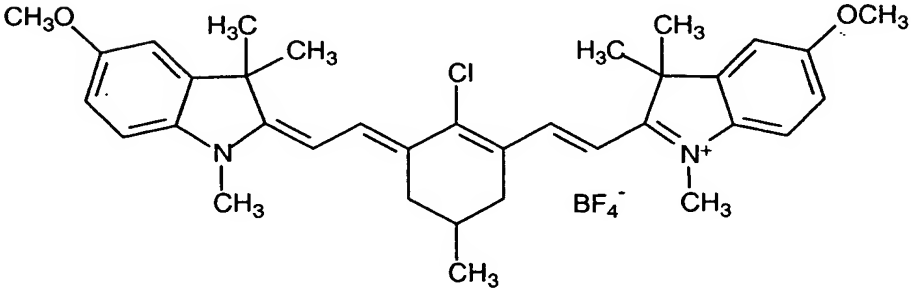

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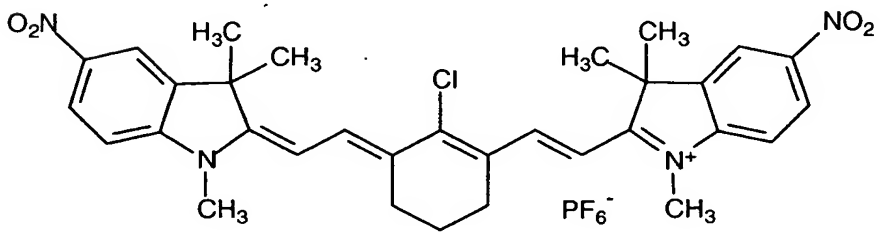

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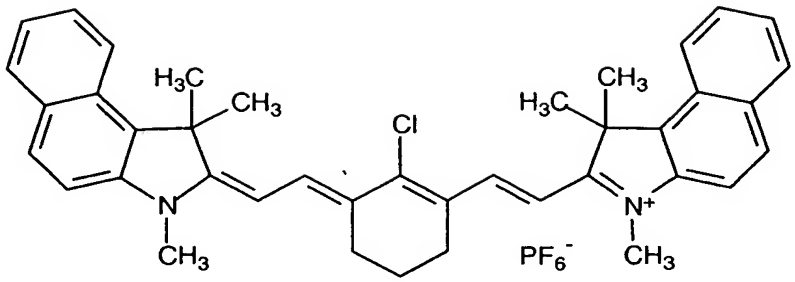

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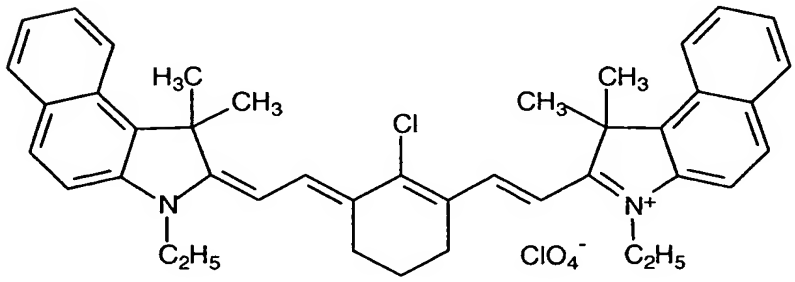

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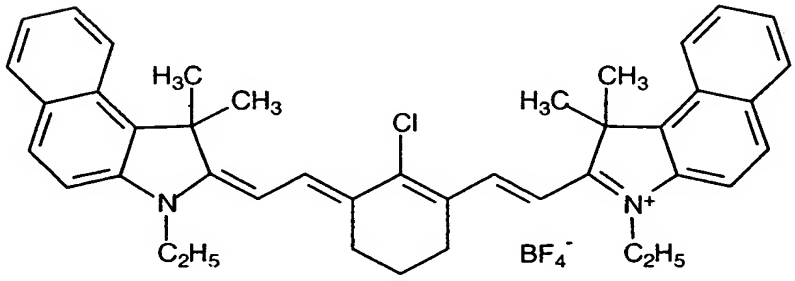

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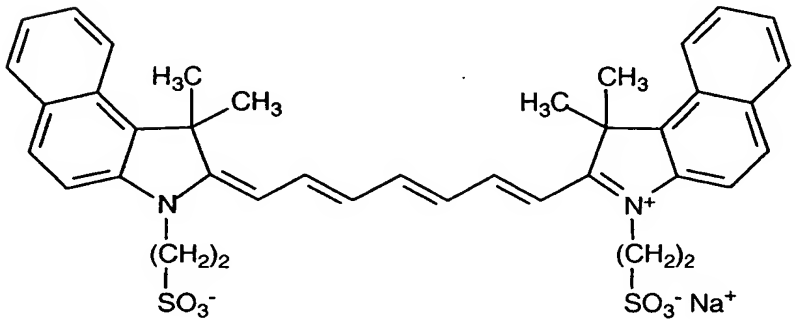
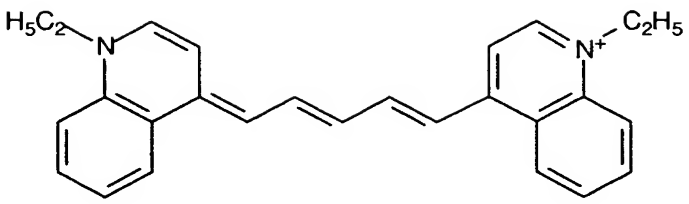
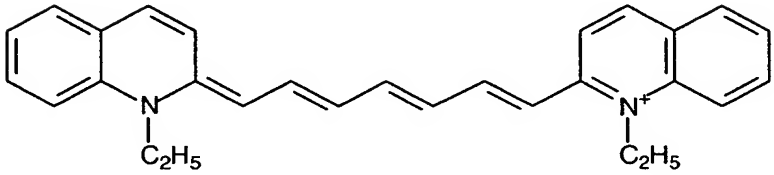


AD-53

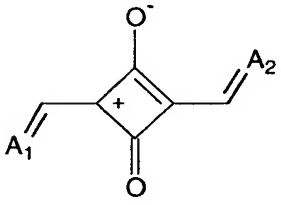


AD-54

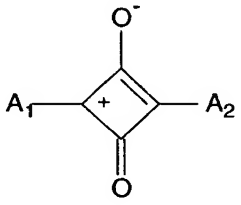


AD-55.

13. The photothermographic material of claim 11 wherein said squaraine dye is represented by the following Structures II or III:



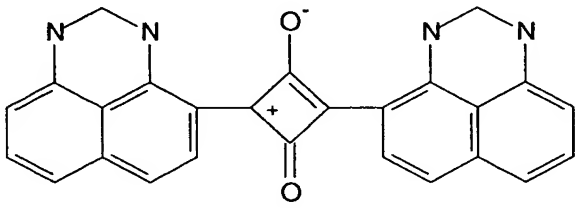
II



III

wherein A_1 and A_2 independently represent a group derived from a dye base, a heterocyclic group, or an electron-donating aromatic group.

14. The photothermographic material of claim 11 wherein said squaraine dye is a dihydropyrimidine squaraine dye having the nucleus represented by the following Structure IV:



IV.

15. The photothermographic material of claim 1 further comprising at least one spectral sensitizing dye.

16. The photothermographic material of claim 15 comprising a merocyanine or cyanine spectral sensitizing dye in an amount of at least 10^{-10} mol/mol of silver halide.

17. The photothermographic material of claim 1 further comprising a toner and a polyhalo antifoggant having a $-SO_2C(X')_3$ group wherein X' represents the same or different halogen atoms.

18. The photothermographic material of claim 1, wherein the one or more thermally-developable imaging layers have been independently coated and dried while the material is conveyed at a rate of at least 25 meters per minute.

19. A black-and-white photothermographic material comprising a support having on one side thereof:

a) a thermally-developable imaging layer comprising a hydrophobic binder and in reactive association, a photosensitive silver bromide or silver bromoiodide, or mixtures thereof, one or more non-photosensitive silver

carboxylates, at least one of which is silver behenate, and a merocyanine or cyanine spectral sensitizing dye,

b) a protective layer that is farther from said support than said imaging layer,

said photothermographic material also comprising an antihalation layer on the backside of said support, said antihalation layer comprising a binder and at least one antihalation dye,

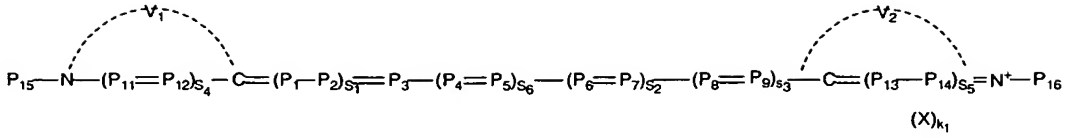
wherein said thermally-developable imaging layer further comprises one or more radiation absorbing substances that provide a total absorbance in said one or more thermally-developable imaging layers of greater than 0.6 and up to and including 3 at an exposure wavelength,

and

said one or more thermally-developable imaging layers having been coated and dried while the material is conveyed at a rate of at least 5 meters per minute.

20. The photothermographic material of claim 19 wherein said antihalation layer comprises cyclobutenediylium, 1,3-bis[2,3-dihydro-2,2-bis[[1-oxohexyl)oxy]methyl]-1H-perimidin-6-yl]-2,4-dihydroxy-, bis(inner salt), or 3H-Indolium, 2-[2-[2-chloro-3-[(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)ethylidene]-5-methyl-1-cyclohexen-1-yl]ethenyl]-1,3,3-trimethyl-, perchlorate as an antihalation dye.

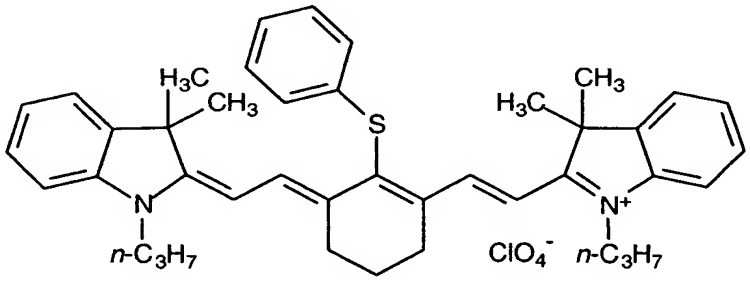
21. The photothermographic material of claim 19 wherein said one or more radiation absorbing compounds are represented by the following Structure I.



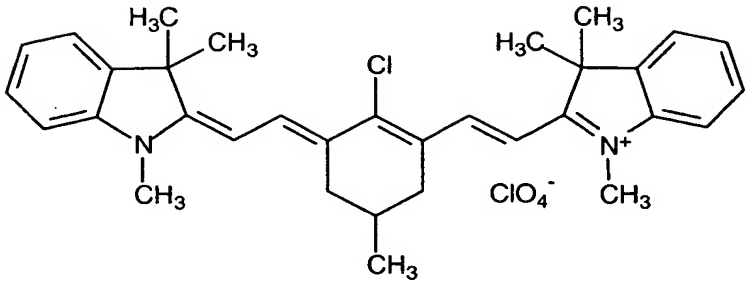
I

wherein V_1 and V_2 independently represent the non-metallic atoms necessary to form substituted or unsubstituted 5-, 6-, or 7-membered heterocyclic rings, P_{15} and P_{16} independently represent alkyl, aryl, alkaryl, or heterocyclyl groups, P_1, P_2, P_3, P_4, P_5, P_6, P_7, P_8, P_9, P_{11}, P_{12}, P_{13}, and P_{14} independently represent methine groups or substituted methine groups that may optionally form a ring with one or more other methine groups or with an auxochrome, s_1, s_2, s_3, s_4, s_5, and s_6 are independently equal to 0 or 1, X is an electric charge neutralizing counterion, and k_1 is an integer inclusive of 0 necessary to neutralize an electric charge in the molecule.

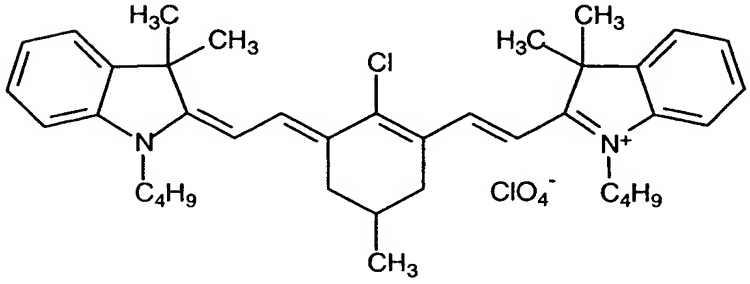
22 The photothermographic material of claim 19 wherein said one or more radiation absorbing compounds are one or more of the following Compounds AD-1 to AD-55, or mixtures thereof:



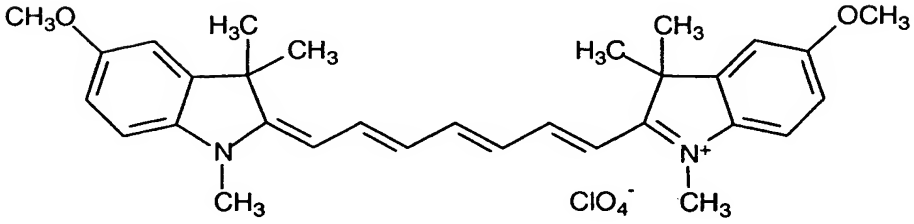
AD-1



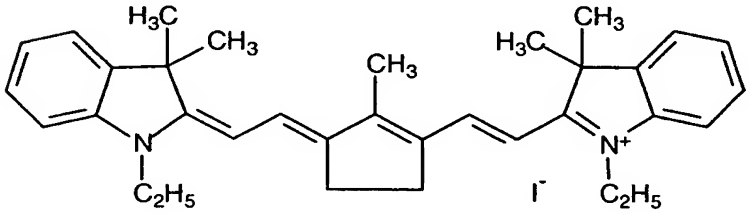
AD-2



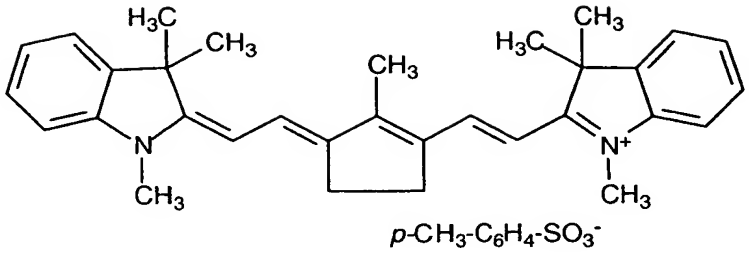
AD-3



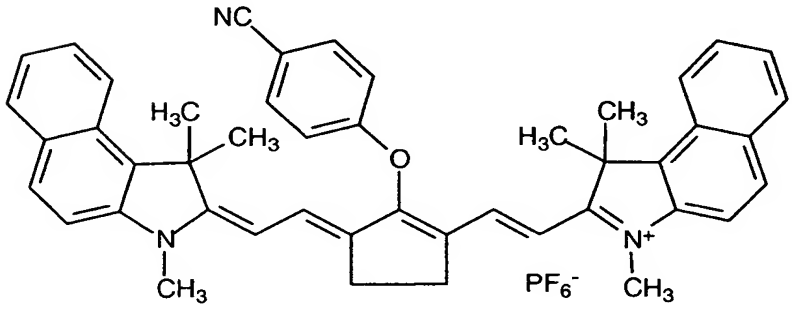
AD-4



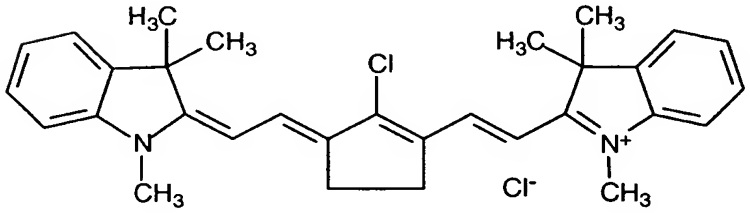
AD-5



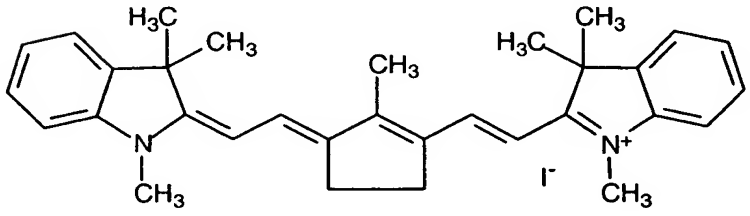
AD-6



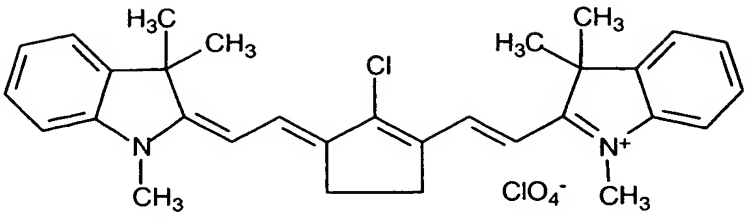
AD-7



AD-8



AD-9



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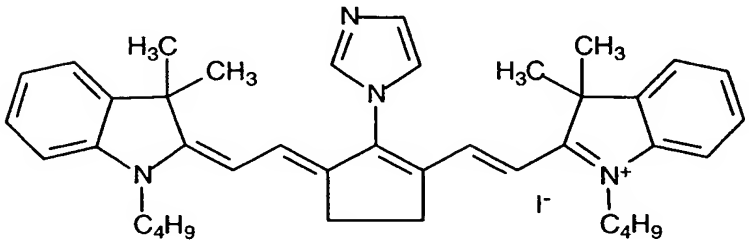

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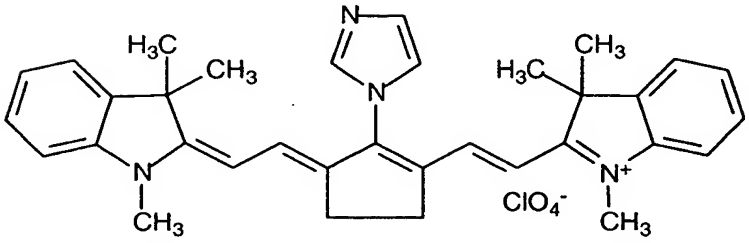
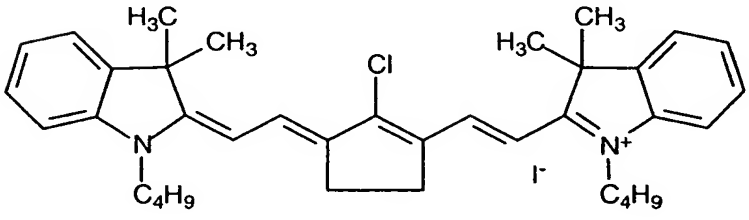


AD-12



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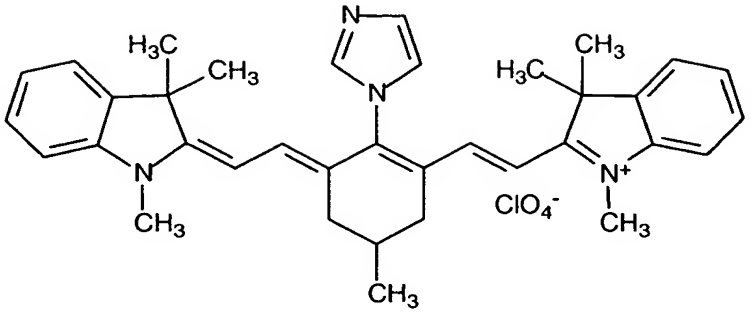

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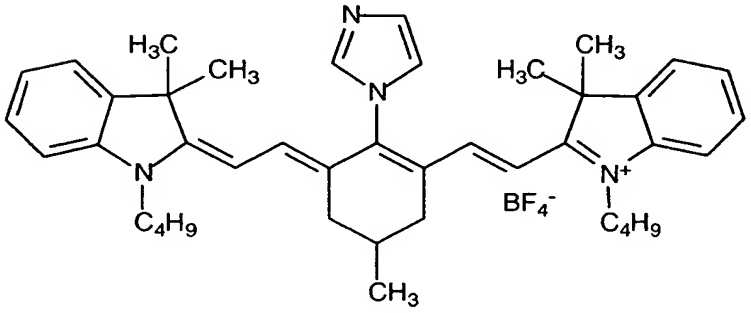

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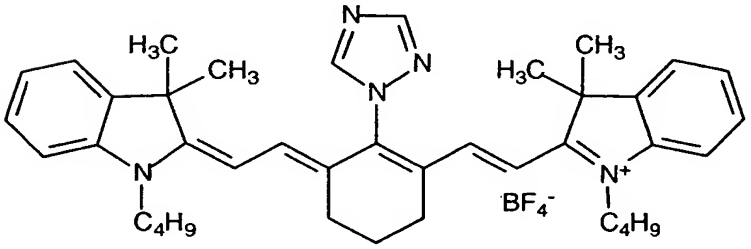
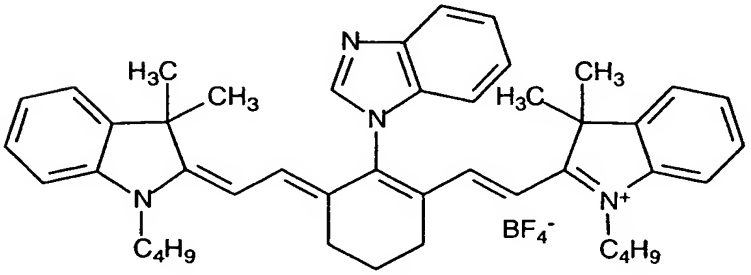
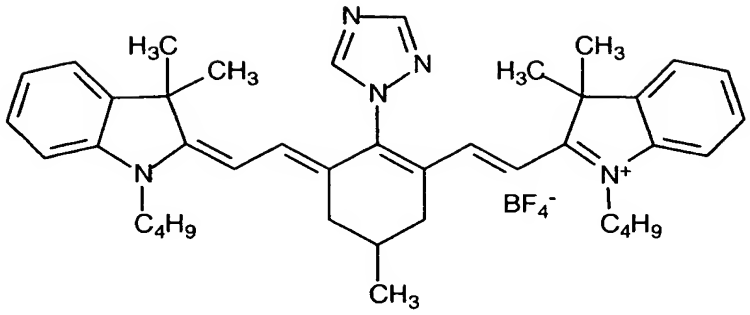


AD-16



AD-17



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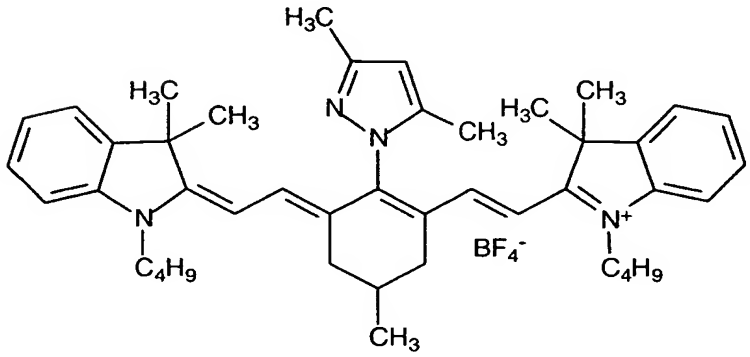

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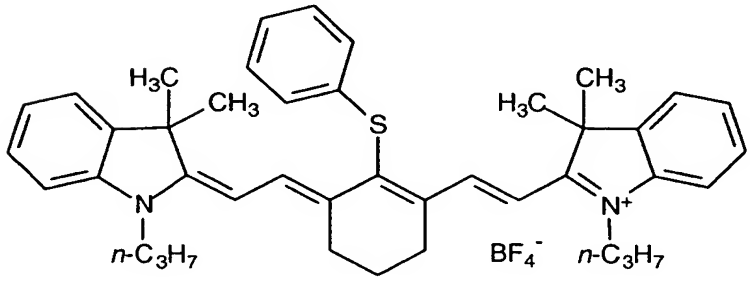

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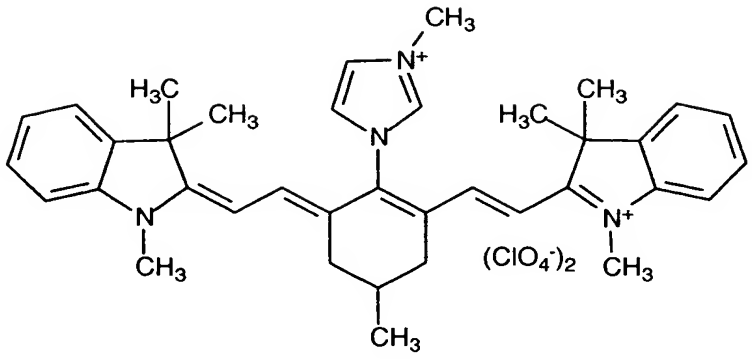

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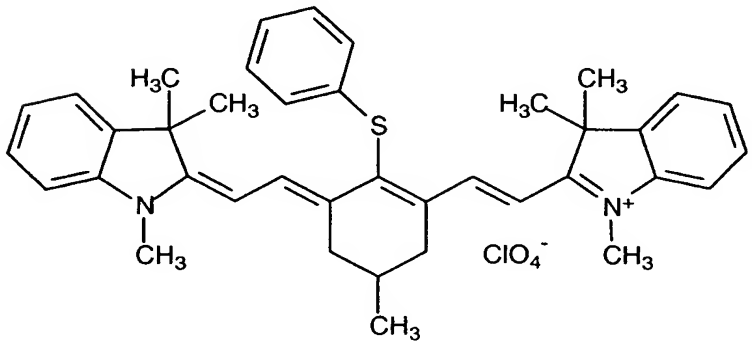

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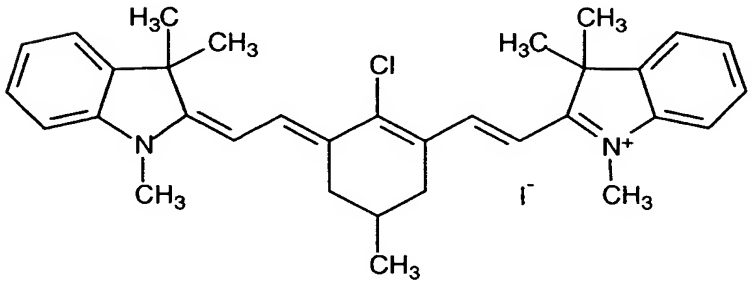

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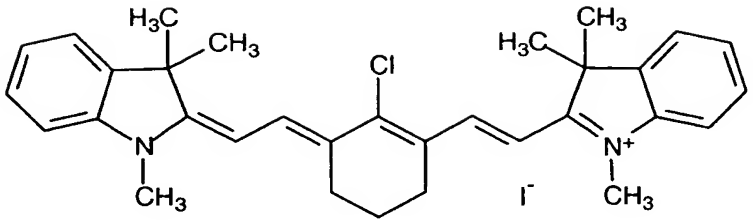

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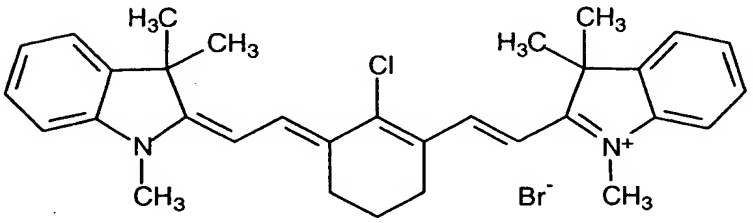

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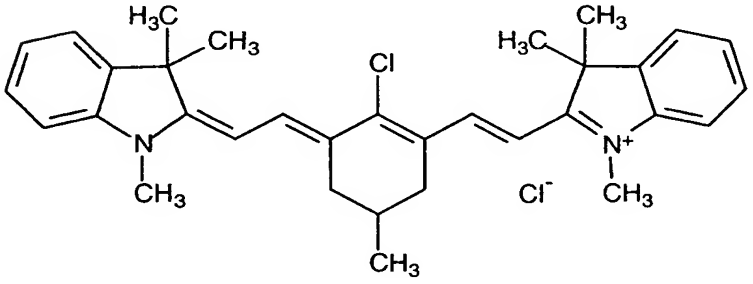
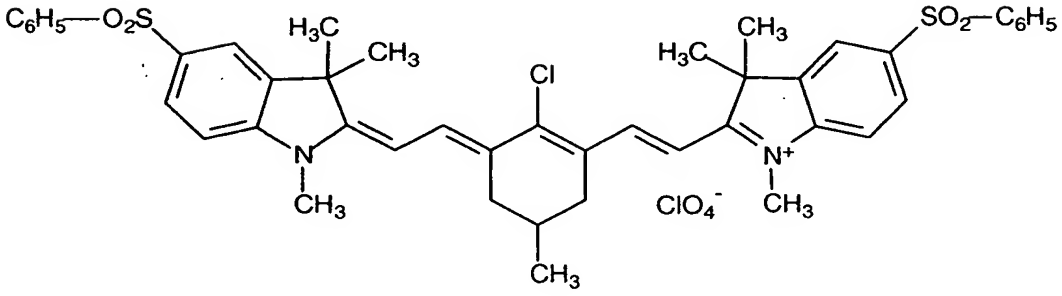


AD-26



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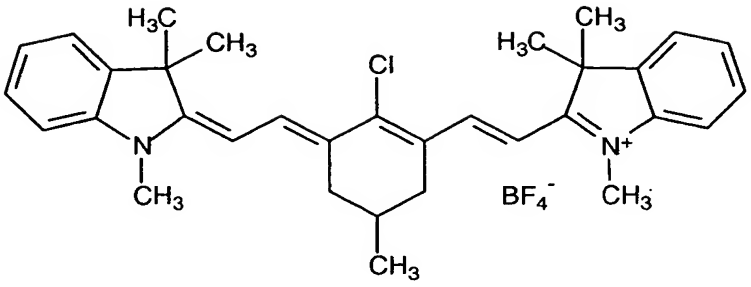
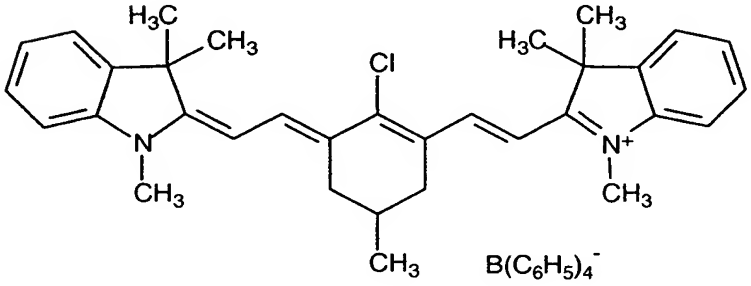
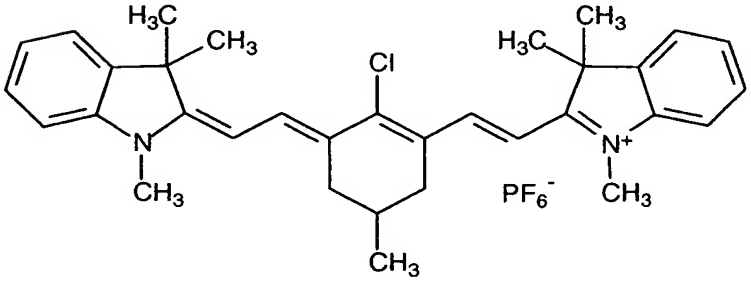


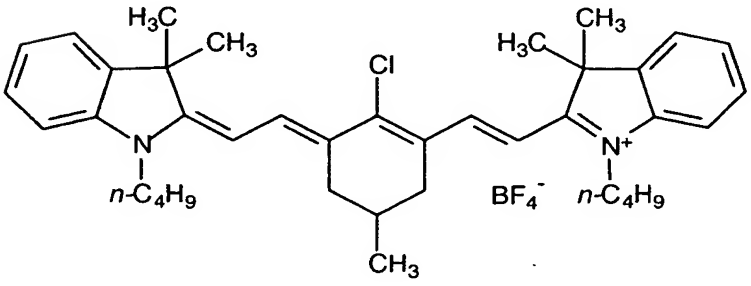
AD-28



AD-29



AD-30



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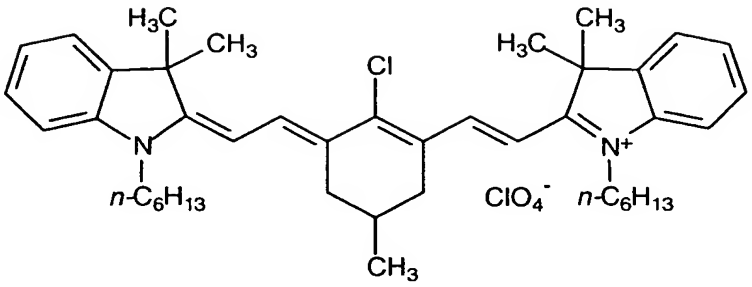

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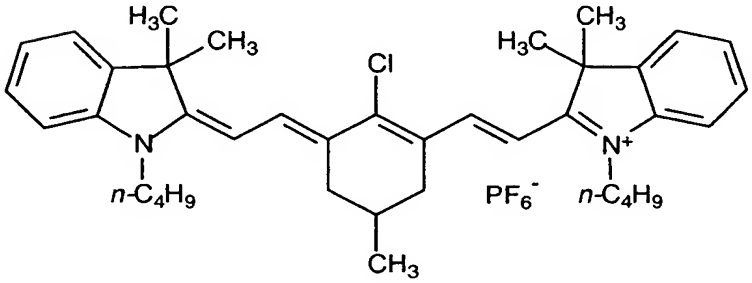
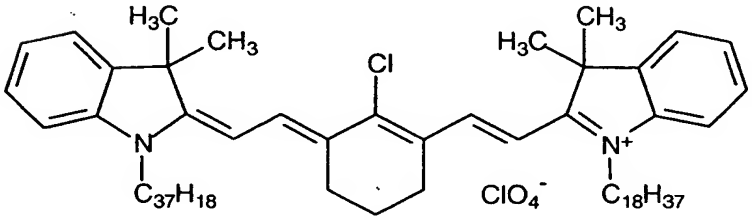
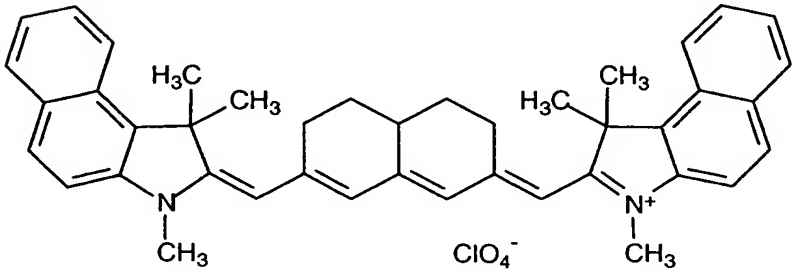


AD-33



AD-34



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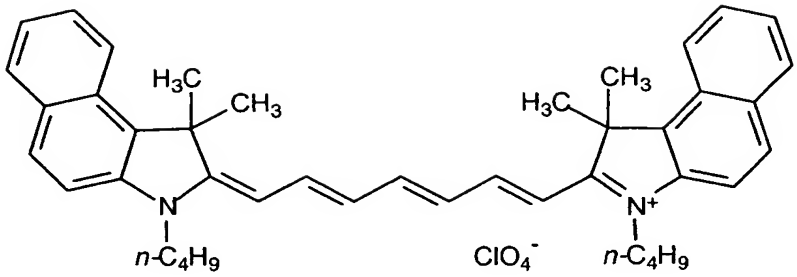

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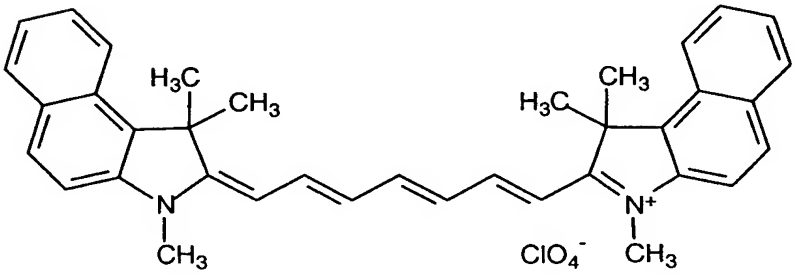

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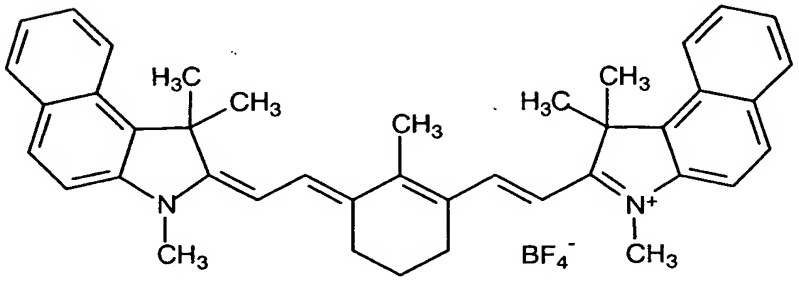
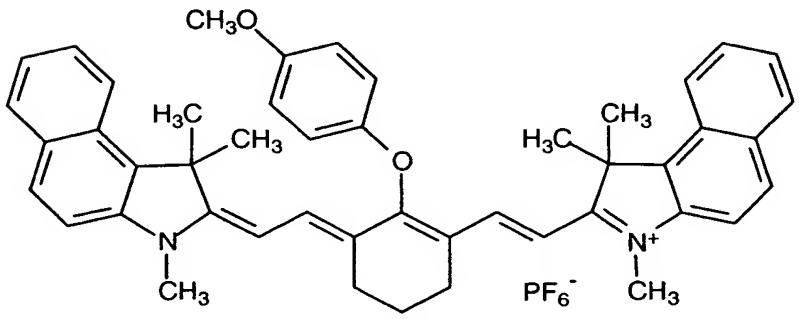
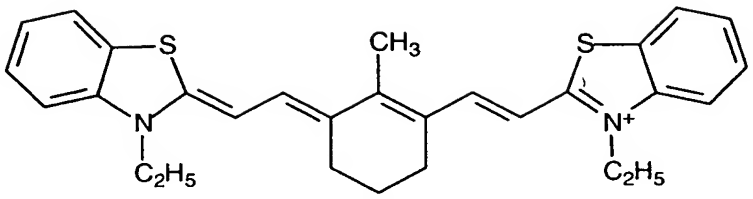


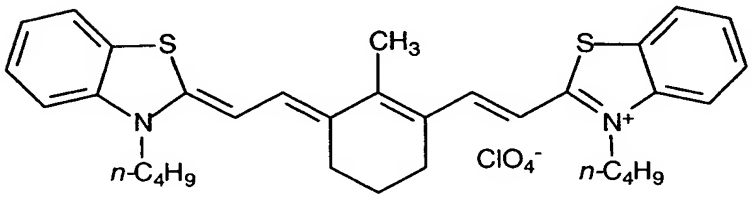
AD-38



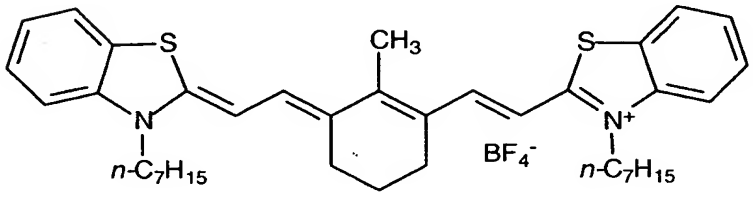
AD-39



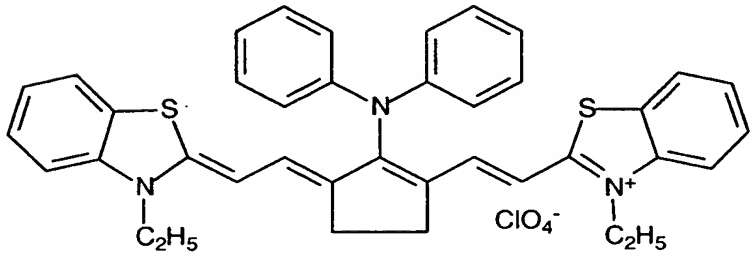
AD-40



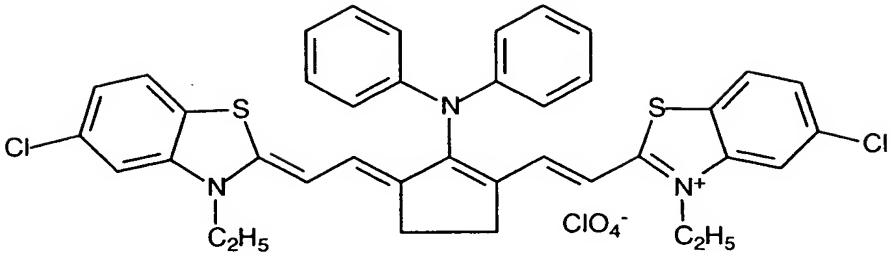
AD-41



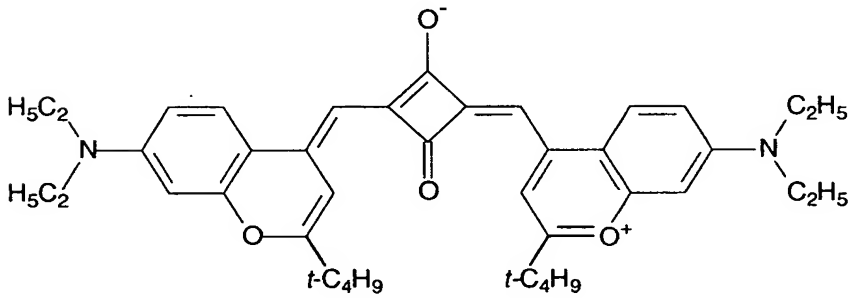
AD-42



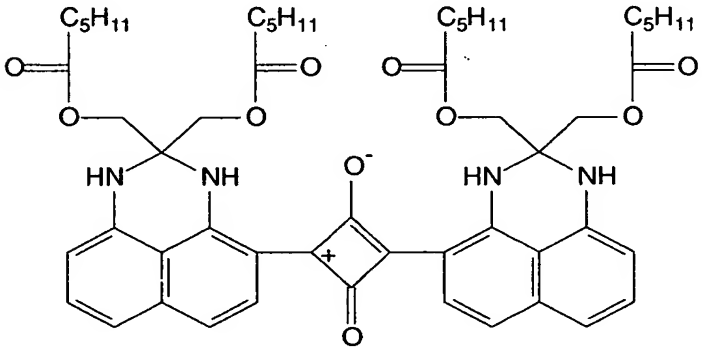
AD-43



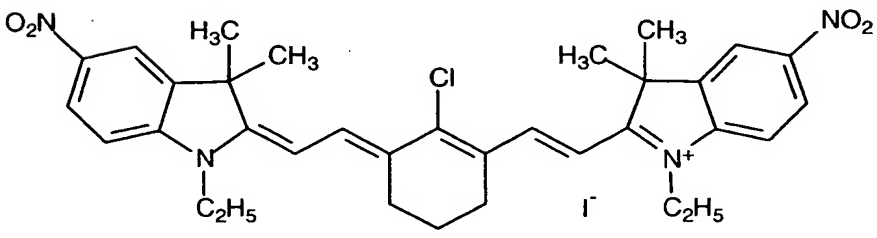
AD-44



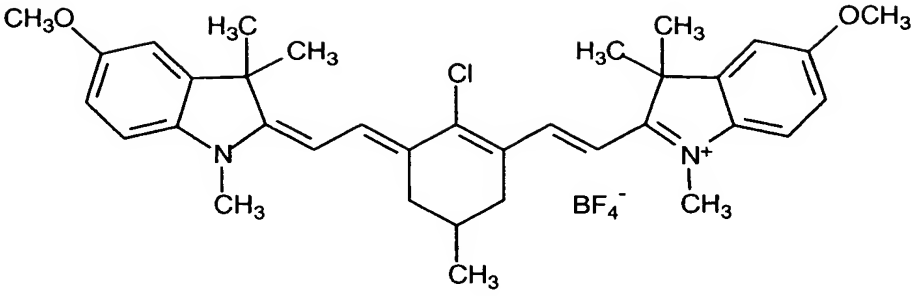
AD-45



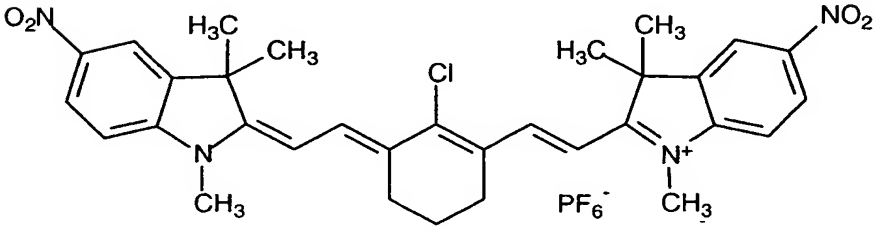
AD-46



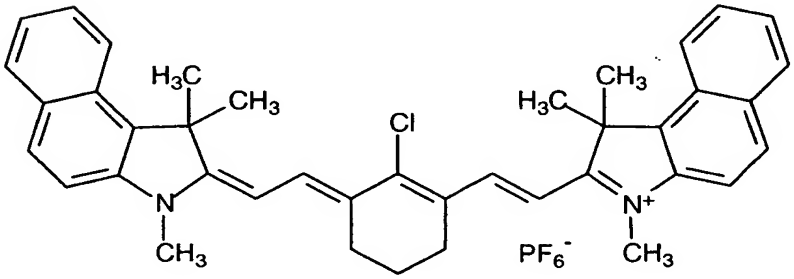
AD-47



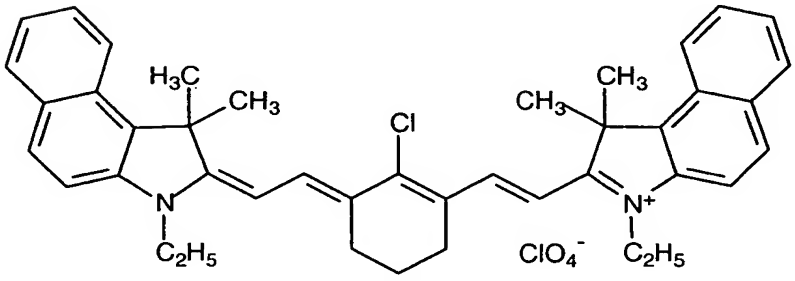
AD-48



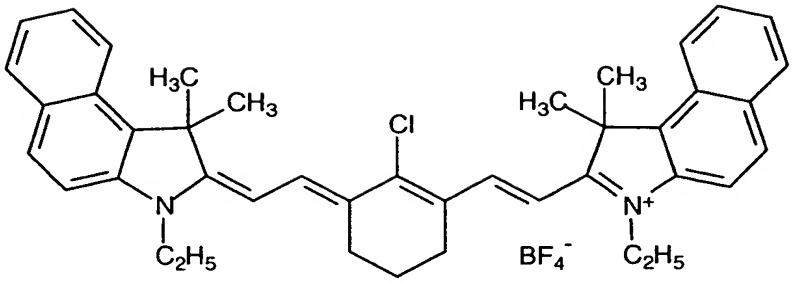
AD-49



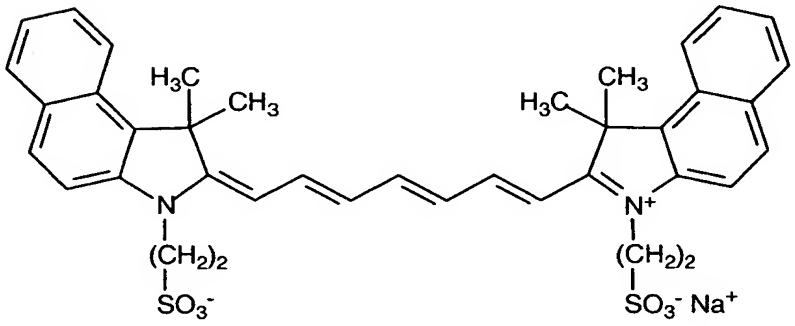
AD-50



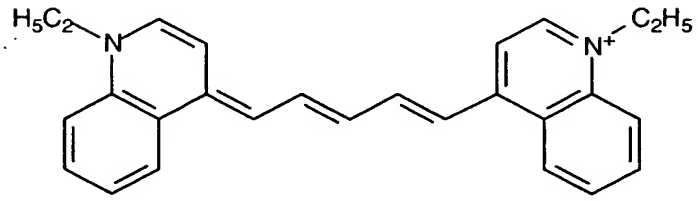
AD-51



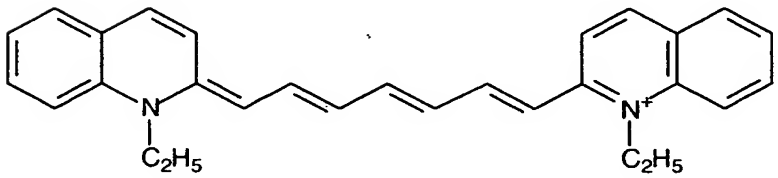
AD-52



AD-53



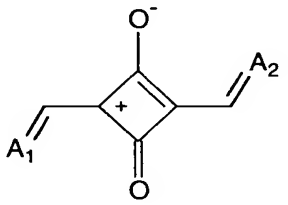
AD-54



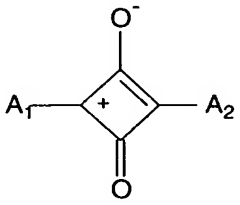
AD-55

23. The photothermographic material of claim 19 wherein said one or more radiation absorbing compounds is a cyanine, hemicyanine, merocyanine, squaraine, or oxanol dye.

24. The photothermographic material of claim 23 wherein said squaraine dye is has the nucleus represented by the following Structures II or III:



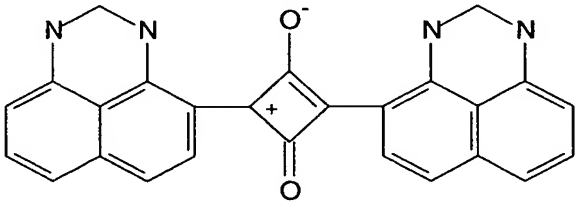
II



III

wherein A_1 and A_2 independently represent a group derived from a dye base, a heterocyclic group, or an electron-donating aromatic group.

25. The photothermographic material of claim 23 wherein said squaraine dye is a dihydropyrimidine squaraine dye having the nucleus represented by the following Structure IV:



IV.

26. The photothermographic material of claim 19, wherein the one or more thermally-developable imaging layers have been independently coated and dried while the material is conveyed at a rate of at least 25 meters per minute.

27. A method of forming a visible image comprising:

A) imagewise exposing the black-and-white photothermographic material of claim 1 to electromagnetic radiation at a wavelength greater than 700 nm to form a latent image, and

B) simultaneously or sequentially, heating said exposed photothermographic material to develop said latent image into a visible image.

28. The method of claim 27 wherein said photothermographic support is transparent and said method further comprises:

C) positioning said exposed and heat-developed photothermographic material between a source of imaging radiation and an imageable material that is sensitive to said imaging radiation, and

D) exposing said imageable material to said imaging radiation through the visible image in said exposed and heat-developed photothermographic material to provide an image in said imageable material.

29. The method of claim 27 wherein said imagewise exposing is carried out using a laser at a wavelength of from about 750 to about 850 nm.

30. A method of preparing the photothermographic material of claim 1, comprising the steps of:

A) preparing a formulation or formulations comprising a binder and in reactive association, a photosensitive silver halide, a non-photosensitive source of reducible silver ions, a reducing composition for said non-photosensitive source reducible silver ions, and a radiation absorbing compound or compounds that absorb at an exposure wavelength,

B) independently coating said formulations on a support in a manner such that, at the exposure wavelength, the total absorbance of all thermally-developable imaging layers is greater than 0.6, and drying them while said material is conveyed at a rate of at least 5 meters per minute,

31. The method of claim 30 wherein the one or more thermally-developable imaging layers have been independently coated and dried while said material is conveyed at a rate of at least 25 meters per minute.

32. A method of reducing mottle in a photothermographic material, comprising the steps of:

A) preparing a formulation or formulations comprising a binder and in reactive association, a photosensitive silver halide, a non-photosensitive source of reducible silver ions, a reducing composition for said non-photosensitive source reducible silver ions, and a radiation absorbing compound or compounds that absorb at an exposure wavelength,

B) coating said formulations on a support in a manner such that, at the exposure wavelength, the total absorbance of all thermally-developable imaging layers is greater than 0.6.

33. The method of claim 32 wherein said one or more thermally-developable imaging layers have been independently coated and dried while said material is conveyed at a rate of at least 25 meters per minute.